CLAIMS

1. A method for surface treatment comprising the steps of :
cleaning a surface of an object to be processed by using ClF_3 gas; and
removing chlorine derived from the ClF_3 gas still remaining on the surface of the object under treatment even after the step of cleaning the surface.

2. A method for surface treatment according to claim 1 wherein the step of removing chlorine includes a step of removing chlorine from the surface of the object to be processed by using a reducing gas.

3. A method for surface treatment according to claim 2 wherein the reducing gas is H_2 gas.

4. A method for surface treatment comprising the steps of:
making ClF_3 gas adhere to a surface of an object to be processed
by supplying the ClF_3 gas to the surface of the object to be processed;
interrupting the supply of the ClF_3 gas to the surface of the object to be processed; and
cleaning the surface of the object to be processed by using the ClF_3 gas adhering to the surface of the object to be processed.

5. A method for surface treatment according to claim 4 wherein the object to be processed is cooled to 20 ℃ or below in the step of making
ClF_3 gas adhere to the surface of the object.

6. An apparatus for surface treatment comprising:
a processing vessel in which a object to be processed is placed;
a means for supplying ClF_3 gas into the processing vessel;
a means for activating the ClF_3 gas supplied in the processing vessel; and
a means for supplying a reducing gas into the processing vessel.

7. An apparatus for surface treatment comprising:
a processing vessel in which a object to be processed is placed;
a means for supplying ClF_3 gas into the processing vessel;
a means for promoting adhesion of ClF_3 gas to the object to be processed; and
a means for activating ClF_3 gas supplied in the processing vessel.

8. An apparatus for surface treatment according to claim 7 further comprising a mount located in the processing vessel to set the object to be processed thereon.

9. An apparatus for surface treatment according to claim 8 wherein the means for promoting adhesion of the ClF_3 gas to the object to be processed is provided in the mount to function to cool the object to be processed on the mount.

10. An apparatus for surface treatment according to claim 9 wherein the means for activating the ClF_3 gas heats the object to be processed in a heating position distant from the object setting position for setting the object on the mount.

11. An apparatus for surface treatment according to claim 10 further comprising a means for elevating and lowering the object to be processed between the object setting position and the heating position.

12. A cluster device comprising:
the apparatus for surface treatment according to any one of claims 6 through 11;
a transport chamber capable of maintaining a non-reactive atmosphere inside and capable of transporting a object to be processed in the non-reactive atmosphere to and from the surface processing apparatus; and
one or more processing apparatuses capable of transporting the object to be processed to and from the transport chamber.

13. The cluster device according to claim 12 wherein the apparatus for surface treatment is a metal wiring formation chambers for making metal wiring on the object to be processed.

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